

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/BE2004/000142

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N31/00 A01N43/00 A61K31/70 C07H21/02 C07H21/04  
C07H21/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N A61K G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, Sequence Search, BIOSIS, MEDLINE, EMBASE, WPI Data, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| Y          | MIRAGLIA L ET AL: "INHIBITION OF INTERLEUKIN-1 TYPE I RECEPTOR EXPRESSION IN HUMAN CELL-LINES BY AN ANTISENSE PHOSPHOROTHIOATE OLIGODEOXYNUCLEOTIDE" INTERNATIONAL JOURNAL OF IMMUNOPHARMACOLOGY, ELMSFORD, NY, US, vol. 18, no. 4, 1996, pages 227-240, XP001002842<br>ISSN: 0192-0561<br>Abstract; Experimental procedures; p. 228, under "cell culture and oligonucleotide treatment of cells and Analysis of IL-1 receptor, type 1 and ICAM-1 mRNA levels; Table 1 p.230; Discussion.<br>-----<br>-/- | 1-19,36,<br>37        |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"Z" document member of the same patent family

Date of the actual completion of the international search

16 February 2005

Date of mailing of the international search report

13. 09. 05

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Bretherick, J

## INTERNATIONAL SEARCH REPORT

Intern

tion No

PCT/BE2004/000142

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| Y          | US 5 856 099 A (MIRAGLIA ET AL)<br>5 January 1999 (1999-01-05)<br>Columns 1 and 2; Examples 1-5, Table 1;<br>Example 6-9.   | 1-19,36,<br>37        |
| Y          | -----<br>BURCH R M ET AL: "OLIGONUCLEOTIDES<br>ANTISENSE TO THE INTERLEUKIN 1 RECEPTOR<br>MRNA BLOCKTHE EFFECTS OF INTERLEUKIN 1 IN<br>CULTURED MURINE AND HUMAN FIBROBLASTS AND<br>IN MICE"<br>JOURNAL OF CLINICAL INVESTIGATION, NEW<br>YORK, NY, US,<br>vol. 88, October 1991 (1991-10), pages<br>1190-1196, XP000925602<br>ISSN: 0021-9738<br>Abstract; p.1191, RH column, 2nd<br>paragraph; Figs. 1 and 2; Discussion, esp.<br>1st 3 paragraphs. | 1-19,36,<br>37        |
| Y          | -----<br>DEMOOR J M ET AL: "ANTISENSE NUCLEIC<br>ACIDS TARGETED TO THE THYMIDYLATE SYNTHASE<br>(TS) MRNA TRANSLATION START SITE STIMULATE<br>TS GENE TRANSCRIPTION"<br>EXPERIMENTAL CELL RESEARCH, SAN DIEGO, CA,<br>US,<br>vol. 243, 1998, pages 11-21, XP002923758<br>ISSN: 0014-4827<br>Introduction, Fig. 1; Results 1 1st<br>paragraph; paragraph bridging pp. 14 and<br>15; p 18, LH column, 2nd sentence.<br>-----                             | 1-19,36,<br>37        |

PCT/BE2004/000142

| Patent document<br>cited in search report |   | Publication<br>date |    | Patent family<br>member(s) | Publication<br>date |
|---|---|---------------------|----|----------------------------|---------------------|
| US 5856099                                | A | 05-01-1999          | AU | 2993397 A                  | 09-12-1997          |
|   |   |                     | EP | 0928419 A1                 | 14-07-1999          |
|   |   |                     | WO | 9744656 A1                 | 27-11-1997          |
| -----                                     |   |                     |    |                            |                     |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/BE2004/000142

## Box II Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-19, 36, 37

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-19, 36,37

In vitro method for increasing the synthesis of extracellular matrix compounds in a cell population by inhibiting the expression of IL-1R1 characterised in that it comprises the step of contacting the cells with an IL-1R1 exon-bridging antisense oligomer; antisense oligomers for this purpose; their use in the preparation of medicaments.

---

2. claims: 20-35

Methods for the in vitro modulation of the expression of a target gene in a cell population with an antisense oligomer characterised in that mature mRNA function is inhibited by contacting the cells with an exon-bridging antisense oligomer directed against said mature mRNA; method of producing an exon-bridging antisense oligomer for the inhibition of expression of a target gene.

---